REMARKS

In preparation for an interview scheduled with Examiner Alemu, the following remarks and amendments are presented. Reconsideration of the grounds of rejection for claim 5 is respectfully requested in view of the remarks herein and those of the Examiner interview.

Summary of the Office Action

Refcrences to paragraphs in the subject office action are referred to herein in parentheses identifying the appropriate paragraph, e.g. (para x).

The Examiner has indicated that claims 1-4 and 6 contain allowable subject matter.

Claim 5 is rejected under 35 U.S.C. 102(e) as being anticipated by Werner et al., US Pub. 2003/0034918 ("Werner") (para 5).

Summary of the Office Action

A. Rejection of claim 5

The Examiner has rejected claim 5 under 35 U.S.C. 102(e) as being anticipated by "Werner

Proposed claim 5 provides for a method for rapid radiation pattern formation of a fractile array wherein a fractile array comprises an array having an irregular boundary contour, wherein the irregular boundary contour comprises a plane tiled by a plurality of fractiles, said plurality of fractiles covers the plane without any gaps or overlaps, comprising the steps of: a) employing a pattern multiplication for fractile arrays, comprising: deriving a product formulation for the radiation pattern of a fractile array for a desired stage of growth; b) recursively applying step (a) to construct higher order fractile arrays; and c) forming an antenna array based on the results of step (b).

Werner describes the construction of single antenna elements having a fractal shape designed using an iterative building process. Werner repeatedly describes the elements in Figures 1-42 as "generated antenna design," "an antenna configuration," "fractal antenna configuration," exemplary fractal antenna," and "fractal antenna element (FAE) pattern. ¶¶ [0023]-[0039]. While paragraph [0081] states "the genetic algorithm may also be applied to generate an optimal configuration for antennas within an array" this array is not necessarily the same as a fractile array, wherein a fractile array comprises an array having an irregular boundary contour, wherein the irregular boundary contour comprises a plane tiled by a plurality of fractiles, said plurality of fractiles covers the plane without any gaps or overlaps. See specification, pg. 6, lines 7-9; Figures 1, 3, 11 and 12. A proposed amendment to claim 5 is included to clarify the difference between the fractile array, of the present invention, and the fractal shaped antennas or antenna arrays of Werner.

Regarding the claims limitation of "employing a pattern multiplication for fractile arrays," the Examiner has cited to Figures 1-47 as disclosing the claim limitation of "employing a pattern multiplication for fractal arrays." Werner only considers a methodology for designing/optimizing antenna elements having fractal shapes. In other words, the fractal patterns and optimizations thereof are only applied to determine geometric configurations of wire antenna elements, not to the array configurations. An array of these fractal antenna elements are considered, but these are conventional array geometries, not fractile array geometries. Therefore Werner does not disclose a method for rapid radiation pattern formation of a fractile array. A rapid radiation pattern formation cannot be developed for conventional array geometries.

With regards to the claim limitation of "deriving a product formulation for the radiation pattern of a fractile array for a desired stage of growth," the Examiner has cited to Figures 1, 2 and 45 and paragraphs [0047]-[0049] and [0078]-[0081]. The fractal geometries shown in these figures are for wire antenna elements; they do not represent antenna array geometries. Therefore, for reasons already described above, Werner does not disclose employing a pattern multiplication for a fractile array.

With regards to the claim limitation of "recursively applying step (a) to construct higher order fractile arrays," the Examiner has cited Figures 1, 2 and 45 and paragraphs [0049] and [0078]. A fractile array represents a unique array geometry that is created by a recursive tiling process, where the type of tiles used have fractal boundaries. These fractal tiles (i.e., fractiles) can be fit together perfectly without any gaps or overlaps to cover a portion of the plane. Due to the unique fractile geometry of these arrays, it is possible to derive a product formulation for their radiation patterns. It is not possible to do so, however, for conventional array geometries such as those considered in Werner.

Lastly with regards to the claim limitation of "forming an antenna array based on the results of step (b)," the Examiner has cited Figures 1, 2 and 45, paragraphs [0050] and [0078] to [0083]. It is not possible to use recursive algorithms or product formulations for the simple array geometries considered in Werner.

Werner, therefore, fails to disclose each and every limitation of claim 5.

CONCLUSION

The Applicants respectfully request reconsideration and withdrawal of the rejection of claim 5 under 35 U.S.C. § 102(e) presented in the Office Action mailed August 23, 2005.

Respectfully submitted,

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